We claim:

1. An apparatus comprising:

at least one integrated peristaltic micropump for pumping fluid to be analyzed;

a plurality of integrated analysis chambers communicated to said plurality of micropumps; and

a plurality of integrated analysis devices to test said fluid in said analysis chambers for an analyte.

2. The apparatus of claim 1 where said plurality of micropumps pump said fluid into said plurality of analysis chambers and flush said plurality of analysis chambers after analysis of said analyte in said fluid.

3. The apparatus of claim 1 where said plurality of micropumps continuously pump said fluid into said plurality of analysis chambers and continuously flush said plurality of analysis chambers after analysis of said analyte in said fluid.

4. The apparatus of claim 1 where said analysis devices in said plurality of analysis chambers comprise an integrated LED and an integrated optical detector.

5. The apparatus of claim 4 where said integrated LED and integrated optical detector are tuned to an optical absorption line of said analyte.

6. The apparatus of claim 1 where said micropump comprises:

an electro-deformable membrane;

a substrate disposed below said membrane and coupled thereto, a microchannel defined between said membrane and substrate, said microchannel having a longitudinal axis; and

an electrode structure disposed on at least one side of said membrane along side of said microchannel.

7. The apparatus of claim 6 where said electro-deformable membrane is bowed to form a curvature having a symmetrical axis in the direction of said longitudinal axis of said microchannel.

8. The apparatus of claim 6 further comprising a drive circuit coupled to said electrode structure to apply a sequential voltage along said plurality of opposing electrodes to peristaltically deform said electro-deformable membrane in the direction of said longitudinal axis of said microchannel.

9. The apparatus of claim 6 where said electro-deformable membrane is composed of p-type GaN.

10. The apparatus of claim 7 where said electro-deformable membrane is composed of p-type GaN.

11. The apparatus of claim 6 further comprising two opposing pillars disposed on said substrate between said substrate and said membrane generally aligned in the direction of said longitudinal axis.

12. The apparatus of claim 7 further comprising two opposing pillars disposed on said substrate between said substrate and said membrane generally aligned in the direction of said longitudinal axis.

13. The apparatus of claim 8 further comprising two opposing pillars disposed on said substrate between said substrate and said membrane generally aligned in the direction of said longitudinal axis.

14. The apparatus of claim 10 further comprising two opposing pillars disposed on said substrate between said substrate and said membrane generally aligned in the direction of said longitudinal axis.

15. The apparatus of claim 14 where said two opposing pillars are composed of n-type GaN.

16. The apparatus of claim 6 where said electrode structure is comprised of two opposing electrode substructures extending parallel to said microchannel.

17. The apparatus of claim 16 where said two opposing electrode substructures each comprise a plurality of discrete electrodes arranged and configured to provide pairs of opposing electrodes on each side of said microchannel.

18. The apparatus of claim 1 further comprising an integrated control circuit coupled to said micropump, and analysis devices for control thereof.

19. The apparatus of claim 1 where said micropump, analysis chambers and analysis devices are fabricated together during which a photochemical etching step is used in the fabrication of said micropump while remaining portions of said apparatus are masked.

20. A method of fabricating an apparatus of microanalysis of fluidic analytes comprising:

fabricating a micropump composed of nitrides of B, Al, Ga, In, Tl or combinations thereof using photoelectrochemical techniques, said micropump for pumping fluid to be analyzed;

simultaneously fabricating a plurality of analysis chambers communicated to said micropump; and

simultaneously fabricating a plurality of analysis devices to test said fluid in said analysis chambers for an analyte during, said analysis devices being masked from said photoelectrochemical techniques during fabrication of said micropump.

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